

SOUTHWEST**RESEARCH****INSTITUTE**

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To: Don Bannon, Div 20, Ext 5118**From:** Walt Hill, Metrology Group Leader
Institute Calibration Laboratory**Date:** Aug. 14, 2007**Subject:** Out-of-tolerance Notice

The purpose of this notice is to alert you of a condition, which may have caused erroneous measurements affecting safety or the quality of products or services your organization provides. The attached as-found readings are provided for your evaluation to determine if the instrument listed below had an impact and if further action is required.

When the as-found results are near the specification limit, +/- a margin less than the measurement uncertainty, it is not possible to state in-tolerance or out-of-tolerance with a 95% level of confidence. It is the Institute Calibration Laboratory policy that the client is made aware of this situation because the end-user is taking some of the risk that the instrument listed below may not meet the end-user measurement requirements.

Your review/evaluation should be conducted in accordance with your organizational quality policy and procedural requirements. If we can be of further assistance, please contact the Calibration Laboratory at 522-5215.

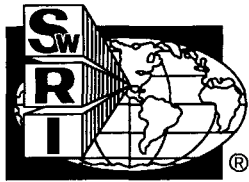
Manufacturer: Vaisala**Model:** HMP235**Description:** Humidity/Temp Meter**Serial Number:** W1840062**Asset Number:** 8769**User ID Number:****Last Calibration:** Dec 29, 2005**Date Received for Service:** Aug. 07, 2007 **Work Order Number:** 303075862**Service Requested:** Scheduled calibration**Remarks:** Temp and %RH out of tolerance. See Measurement Report.

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303075862	Mfr.	VAISALA	Technician:	blt
Asset No.	008769	Model	HMP235 -20 to 180 C		
Serial No.	W1840062	Type.	Temp/RH Transmitter	Cal Date:	13-Aug-07
Remarks: Temperature accuracy is based on worst case error. Manufacturer %RH Limits are +/-1% 0 to 90%RH. CALIBRATED 25 to 65 °C					

Function/Range	Test Point	TI Reading		Difference	+/-Limit	+/-Uncertainty	Found
% RH	% RH	mAmp	% RH	% RH	% RH	% RH	Result
0-100	20.09	7.1	19.38	-0.72	1.0	0.58	Pass
	40.01	10.271	39.19	-0.82	1.0	0.58	Pass
	59.99	13.275	57.97	-2.02	1.0	0.58	Fail
	69.99	14.77	67.31	-2.68	1.0	0.58	Fail
Degrees	°C	mAmp	°C	°C	°C	°C	
	24.93	7.615	25.19	0.26	0.60	0.021	Pass
	43.68	9.268	45.85	2.17	0.60	0.038	Fail
	63.57	10.890	66.13	2.55	0.60	0.055	Fail

END OF REPORT



SOUTHWEST RESEARCH INSTITUTE®

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Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-4834



Calibration Laboratory
Certificate #0972-01

Certificate of Calibration

Submitted By: DIV20

Address: B57

Contact: DON BANNON

Manufacturer / Model: VAISALA / HMP235

Description: HUMIDITY/TEMPERATURE TRANSMITTER

Serial No: W1840062

Asset No: 008769

Procedure: HUMIDITY-DEW POINT - 19 MAY 06

Work Order: 303075862

Date Issued: Aug 15, 2007

Calibration Date: Aug 15, 2007

***Calibration Due:** Aug 15, 2008

Calibration Location: Bldg. 64

Environment: Temp. 73.0°F Hum. 40 %RH

****Data Type:** AS-LEFT

DivID/Location: N/A

This certificate documents traceability to the National Institute of Standards and Technology (NIST) and the International System of Units (SI). The Laboratory quality system conforms to ISO/IEC 17025, 2005, ANSI/NCSL Z540-1-1994 and relevant requirements of the ISO 9000-2000 standard. This certificate shall not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. This certificate shall not be used to claim product endorsement by Southwest Research Institute, American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government. Results of this calibration relate only to the instrument described above at the time of calibration and does not imply any long term stability of the instrument.

*Determined by the customer, does not imply the instrument will remain within tolerance as any number of factors may cause an out-of-tolerance condition before this date. **Found/Left = adjustment and/or repair was not required, As Left = adjusted and/or repaired was required. The client has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance. See Remarks or attached Measurement Report with the same Work Order number for data.

Reported uncertainty calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM) and represents an expanded uncertainty with a coverage factor of $k=2$ to approximate a 95% confidence level.

Remarks: -20 to 180°C (4-20 mA) 0 to 100 %RH (4-20 mA)

Standards Used

Asset No.	Serial No.	Manufacturer	Model	Description	Cal Due
009414	A25788	HART SCIENTIFIC	1502A	TEMPERATURE READOUT	Oct 05, 07
010375	8426006	FLUKE	45	MULTIMETER	Jul 17, 08
010692	632656	HART SCIENTIFIC	5618	RTD (385)	Oct 05, 07
012098	9096026	FLUKE	45	MULTIMETER	Mar 02, 08
006404	9806123	THUNDER SCIENTIFIC	2500	HUMIDITY GENERATOR	May 30, 08

Reviewed by: () wgh () srk (x) jrg () blt () pwc

Metrology Technician

m:\a2la1.rpt Rev date August 15, 2005

Measurements by: Bob Trollinger

Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303075862	Mfr.	VAISALA	Technician:	blt
Asset No.	008769	Model	HMP235 -20 to 180 C		
Serial No.	W1840062	Type.	Temp/RH Transmitter	Cal Date:	15-Aug-07
Remarks: Temperature accuracy is based on worst case error. Manufacturer %RH Limits are +/-1% 0 to 90%RH. CALIBRATED 25 to 65 °C					

Function/Range	Test Point	TI Reading		Difference	+/-Limit	+/-Uncertainty	Left
% RH	% RH	mAmp	% RH	% RH	% RH	% RH	Result
0-100	20.00	7.182	19.89	-0.11	1.0	0.58	Pass
	40.01	10.455	40.34	0.33	1.0	0.58	Pass
	59.97	13.613	60.08	0.11	1.0	0.58	Pass
	70.00	15.192	69.95	-0.05	1.0	0.58	Pass
Degrees	°C	mAmp	°C	°C	°C	°C	
	25.30	7.621	25.26	-0.03	0.60	0.021	Pass
	44.25	9.140	44.25	0.00	0.60	0.038	Pass
	62.95	10.670	63.38	0.42	0.60	0.055	Pass

END OF REPORT